



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,156	03/23/2004	Yoshimasa Araki	00862.017965	2173
5514 7590 02/28/2007 FITZPATRICK CELLA HARPER & SCINTO 30 ROCKEFELLER PLAZA NEW YORK, NY 10112			EXAMINER MRUK, GEOFFREY S	
			ART UNIT	PAPER NUMBER
			2853	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/28/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/806,156

Applicant(s)

ARAKI ET AL.

Examiner

Geoffrey Mruk

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-11 is/are pending in the application.
- 4a) Of the above claim(s) 3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-7 and 9-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4-7, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Waller et al. (US 7,048,353 B2) in view of Koizumi et al. (US 6,000,792).

With respect to claim 1, Waller discloses a discharging apparatus (Fig. 1) having a discharge head (Fig. 1, element 28) in which a plurality of discharge nozzles (Fig. 4, element 72) are arranged to discharge liquids supplied from supply ports (Fig. 1, elements 30,32,34,36) through discharge ports, and formed such that some of the plurality of discharge nozzles discharge liquids having different liquid compositions (Column 2, lines 53-64), comprising:

- removing means (Fig. 1, element 41) for removing a liquid in each of said discharge nozzles by applying a pressure difference between the supply port and discharge port of each discharge nozzle (Column 3, line 65 – Column 4, line 12),
- wherein said removing means further comprises a cap member (Fig. 1, element 60) which operates to cover either the said supply port or discharge port (Fig. 2, element B), when removing the liquid in one of the discharge nozzles, so as to come into tight contact with said the discharge head (Column 4, lines 13-21), and

- wherein said removing means accumulates the liquids removed from the discharge nozzles through a filtration unit (Fig. 4, element 82), such that liquids having the same liquid composition are accumulated together in a liquid collection container and can be used again (Column 4, line 2).

With respect to claim 2, Waller discloses said removing means (Fig. 1, element 41) generates a negative pressure in the discharge port, with the discharge port being covered by said cap member, and removes the liquid the one discharge nozzle by suction through said cap member (Column 3, line 65 – Column 4, line 21).

With respect to claim 4, Waller discloses when removing the liquid in the one discharge nozzle (Fig. 4, element 72), said cap member (Fig. 1, element 60) operates to come into tight contact with the discharge head so as to cover only the supply gents port or discharge port of the one discharge nozzle without coming into contact with any adjacent supply port or discharge port (Column 4, lines 13-21).

With respect to claim 5, Waller discloses removing means comprises:

- cap member (Fig. 2, elements 60,62,64,66) equal in number to a number of the discharge nozzles (Fig. 2, elements 20,22,24,26) and
- a connecting member (Fig. 2, elements 40,42,44,46) to be connected to one of communication channels connected to said cap members,
- wherein when removing the liquid in the discharge nozzles, said cap members operate to come into contact with the discharge head so as to cover predetermined discharge ports without coming into contact with adjacent discharge ports, and said connecting member operates to be connected to one of

said communication channels, so that the liquids in the nozzles are removed through a cap member that is connected to the one of said communication channels which is connected to said connecting member (Column 3, line 65 – Column 4, line 21).

With respect to claim 6, Waller discloses the discharge head (Fig. 1, element 28) comprises electrothermal transducers which generate heat energy for liquid discharge (Column 4, lines 44-50).

With respect to claim 7, Waller discloses the discharge head (Fig. 1, element 28) discharges the liquid from the discharge ports utilizing film boiling caused by the heat energy applied by the electrothermal transducers (Column 4, lines 44-50).

With respect to claim 9, Waller discloses a removing method of removing a liquid from a discharge nozzle in a discharging apparatus (Column 3, line 65 – Column 4, line 21).

With respect to claim 10, Waller discloses a method in a discharging apparatus of removing a liquid from some of discharge nozzles formed in a discharge head in the discharging apparatus (Column 3, line 65 – Column 4, line 21).

With respect to claim 11, Waller discloses in a discharging apparatus (Fig. 1) having a discharge head (Fig. 1, element 28) in which a plurality of discharge nozzles (Fig. 4, element 72) are arranged to discharge liquids supplied from supply ports (Fig. 1, elements 30,32,34,36) through discharge ports, and formed such that some of the plurality of discharge nozzles discharge liquids having different liquid compositions (Column 2, lines 53-64), a removing method comprising the step of:

Art Unit: 2853

- applying a pressure difference (Fig. 1, element 41) between the supply port and discharge port of each of the discharge nozzle, thereby removing a liquid in each discharge nozzle (Column 3, line 65 – Column 4, line 21),
- wherein a cap member (Fig. 1, element 60) which covers either the supply port or discharge port of one of the discharge nozzles is brought into contact (Fig. 1, element B) with the discharge head, and the liquid in the one discharge nozzle is removed through the cap member (Column 4, line 2),
- wherein the liquids are removed from the discharge nozzles through a filtration unit (Fig. 4, element 82), such that liquids having the same liquid composition are accumulated together in a liquid collection container and can be used again.

However, Waller fails to disclose a deaeration unit.

Koizumi discloses an ink jet apparatus provided with an improved recovery mechanism where “In the filter unit 17, a filter 100 composed of ridge meshes, for example, is provided in order to remove fine dust particles and air bubbles” (Column 1, lines 57-59).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to use the filter disclosed by Koizumi to remove air bubbles in the printhead maintenance system of Waller. The motivation for doing so would have been “to eliminate the causes of the abnormal ink discharging due to the ink droplets, foreign substances, or the like adhering to the circumference of the ink discharging apertures” (Column 3, lines 45-48).

Response to Arguments

The examiner makes of record that the foreign priority, drawing, and claim objections dated 7 August 2006 are withdrawn in view of applicant's remarks.

Applicant's arguments, see pages 13-14, filed 7 December 2006, with respect to the rejection(s) of claim(s) 1 and 11 under 35 USC102 (b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Waller et al. (US 7,048,353 B2) in view of Koizumi et al. (US 6,000,792).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey Mruk whose telephone number is 571 272-2810. The examiner can normally be reached on 7am - 330pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2853

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GSM
2/22/2007



STEPHEN MEIER
SUPERVISORY PATENT EXAMINER